GEO4NIEM: MSA Demo Transcript

Narrator:

This video shows Luciad's Vessel Demo, prepared for the OGC Geo4NIEM initiative. In this demo, Luciad takes the role of a coast guard that can monitor and analyze vessel tracks. In this role, we receive a request for information requiring information about vessels around New York that can bring fuel to Staten Island within eight hours. To answer this RFI, we have deployed a situational awareness client, which you can see here, and a set of OGC services capable of distributing vessel track data.

Let's first discuss the OGC services, which are shown in this diagram. A core component is the transactional web feature service 2.0 that provides the vessel track data. Its most important capability is the transformation between the NIEM Position IEPD and the GML application schema. Through a web feature service transaction request, users can add data in the NIEM Position IEPD representation. When the data arrives in the web feature service, it is transformed to a GML application schema based on that IEPD and stored in a database. After that, users can query the data following the GML application schema. Additionally, clients can also retrieve the data back in the NIEM Position IEPD representation. This demonstrates that a full roundtrip between a NIEM IEPD and a GML application schema is possible. Finally, a feature portrayal service is provided. Clients can rely on this service to request a rendering of the map of the vessel tracked data.

With these OGC services being set up, we can now go back to the client and further handle the RFI. The first step is to connect with the web feature service. We can do this by dragging the capabilities URL onto the map. For this demo, this service has been preloaded with the NIEM Position IEPD vessel track data for an area around New York. This data was originally provided by Exact Earth. The rendering of the vessel tracks uses a ship icon oriented according to the specified heading in the data. Selecting a vessel track shows its most important properties such as Name, Origin, and Category. By double clicking a vessel, we can also view all available properties and browse the entire NIEM Position IEPD data structure.

The next step is to filter this vessel data to respond to the RFI. In the panel on the top right, multiple OGC filtering options are available. For instance, we can enable a vessel type filter. Following the RFI, we have to search the vessels containing fuel, which is represented by the vessel type "tanker." By clicking on refresh, a new query is sent to the web feature service with the specified OGC filter. The resulting vessel data now only contains tankers.

Additionally, we want to know which ships can potentially be within eight hours in the New York Harbor. For this, we can use the travel duration filter. This uses a custom OGC filter function that has been added to the web feature service. This function allows you to send a position to the service and request how long it will potentially take for a vessel to get to that position. To calculate this, the web feature service uses a few sensor defaults about the typical speed of vessels. It also uses a straight line distance measure for simplicity. We can fill in the maximum duration in hours and select the desired harbor. Refreshing the query now further reduces the vessel data to tankers that can potentially reach New York Harbor within eight hours.

We have now prepared a vessel data set for the RFI response. To be able to communicate this and answer the RFI, we can now easily save this data as a GML feature collection and send it to the RFI requestor. This data adheres to the NIEM Position IEPD based GML application schema. All vessel information, as it appeared in the original NIEM data, can be accessed.

This concludes Luciad's demonstration for Geo4NIEM, which showed the use of Scott's components to deliver and analyze NIEM vessel data in an OGC services environment.